

**IN THE CLAIMS:**

- 1 1. (CURRENTLY AMENDED) In a data network comprising a plurality of nodes, a  
2 method for transferring data packets between a source node and a destination node con-  
3 tained in the network, wherein the source node and destination node belong to the same  
4 virtual-local-area network (VLAN), the method comprising the steps of:  
5 |       establishing a virtual port associated with the destination node, the virtual port  
6 | supporting a plurality of connections, and a particular connection associated with the vir-  
7 | tual port and the VLAN;  
8 |       acquiring a data packet from the source node, wherein the packet is associated  
9 | with the VLAN and contains a destination address associated with the destination node;  
10 | and  
11 |       transferring the packet to the destination node over the particular connection via  
12 | the virtual port.
- 1 | 2. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 comprising the step  
2 | of:  
3 |       applying a port identifier (ID) associated with the virtual port to an interface de-  
4 | scriptor block (IDB) database to identify an IDB database entry associated with the vir-  
5 | tual port.
- 1 | 3. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 2 wherein the identi-  
2 | fied IDB database entry contains a VLAN ID that represents the VLAN associated with  
3 | the packet.
- 1 | 4. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the packet  
2 | contains a VLAN ID that represents the VLAN associated with the packet.

1 | 5. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 comprising the steps  
2 | of:

3 |       applying the destination address contained in the packet and a VLAN ID that  
4 | identifies the VLAN associated with the packet to a forwarding database to locate a for-  
5 | warding database entry that contains (i) a destination address that matches the destination  
6 | address contained in the packet and (ii) a VLAN ID that matches the VLAN ID that iden-  
7 | tifies the VLAN associated with the packet; and  
8 |       identifying a virtual port associated with the destination node using a port identi-  
9 | fier contained in the matching forwarding database entry.

1 | 6. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 comprising the steps  
2 | of:

3 |       applying a port identifier (ID) associated with the virtual port to an interface de-  
4 | scriptor block (IDB) database to identify an IDB database entry associated with the vir-  
5 | tual port;

6 |       locating a virtual port (VPORT) VLAN database using an address contained in  
7 | the IDB database entry;

8 |       applying a VLAN ID that identifies the VLAN associated with the packet to the  
9 | VPORT VLAN database to locate a VPORT VLAN database entry that contains a VLAN  
10 | ID that matches the VLAN ID that identifies the VLAN associated with the packet;

11 |       encapsulating the packet; and

12 |       transferring the encapsulated packet over a particular connection identified by a  
13 | connection ID contained in the matching VPORT VLAN database entry.

1 | 7. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 6 wherein the packet is  
2 | encapsulated in accordance with the Institute of Electrical and Electronics Engineers  
3 | (IEEE) 802.1Q standard.

1 | 8. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 6 comprising the steps  
2 | of:

3 |         acquiring the encapsulated packet;  
4 |         decapsulating the acquired encapsulated packet to yield the original packet;  
5 |         applying the destination address contained in the original packet to an address  
6 | translation database to determine if the destination address matches an internal address  
7 | contained in an entry in the database; and  
8 |         if so, replacing the destination address in the original packet with an external ad-  
9 | dress contained in the matching entry.

1 | 9. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the particu-  
2 | lar connection is a point-to-point protocol (PPP) connection.

1 | 10. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the par-  
2 | ticular connection is an Asynchronous Transfer Mode (ATM) virtual connection (VC).

1 | 11. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the par-  
2 | ticular connection is a frame relay connection.

1 | 12. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the par-  
2 | ticular connection is a trunked connection.

1 | 13. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 1 wherein the par-  
2 | ticular connection is associated with a connection identifier (ID).

1 | 14. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 13 comprising the  
2 | step of:  
3 |         identifying an entry in a VLAN ID database that contains a virtual connection  
4 | (VC) ID that matches the connection ID.

1 | 15. (CURRENTLY AMENDED) AThe method as defined in claim 13 comprising the  
2 | steps of:

3 |         acquiring an encapsulated packet on the particular connection;  
4 |         identifying an internal VLAN ID associated with the particular connection's ID;  
5 |         and  
6 |         doubly encapsulating the encapsulated packet wherein the doubly encapsulated  
7 | packet contains the internal VLAN ID.

1 | 16. (CURRENTLY AMENDED) AThe method as defined in claim 15 wherein the dou-  
2 | bly encapsulated packet is encapsulated in accordance with the Institute of Electrical and  
3 | Electronics Engineers (IEEE) 802.1Q standard.

1 | 17. (CURRENTLY AMENDED) AThe method as defined in claim 15 comprising the  
2 | steps of:  
3 |         applying a destination address contained in the doubly encapsulated packet to an  
4 | address translation database to determine if the destination address matches an external  
5 | address contained in an entry in the address translation database; and  
6 |         if so, replacing the destination address contained in the doubly encapsulated  
7 | packet with an internal address contained in the matching entry.

1 | 18. (CURRENTLY AMENDED) In a data network comprising a plurality of nodes, a  
2 | method for transferring data packets between a source node and a destination node con-  
3 | tained in the network, wherein the source node and destination node belong to the same  
4 | virtual-local-area network (VLAN), the method comprising the steps of:  
5 |         generating a data packet at the source node, wherein the data packet contains a  
6 | destination address associated with the destination node;  
7 |         transferring the packet to a source intermediate node contained in the network;  
8 |         at the source intermediate node, (i) acquiring the packet, (ii) identifying a VLAN  
9 | associated with the packet, (iii) identifying a virtual port through which the destination

10 | node may be reached, the virtual port supporting a plurality of connections, (iv) identify-  
11 | ing a particular connection that is associated with the virtual port and the packet's VLAN,  
12 | and (v) transferring the packet over the particular connection via the virtual port to a des-  
13 | tination intermediate node contained in the network; and

14 | at the destination intermediate node, (i) acquiring the packet, (ii) identifying a port  
15 | through which the destination node may be reached and (iii) forwarding the acquired  
16 | packet to the destination node.

1 | 19. (CURRENTLY AMENDED) A method as defined in claim 18 comprising the step  
2 | of:

3 | at the source intermediate node, encapsulating the packet.

1 | 20. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 19 wherein the  
2 | packet is encapsulated in accordance with the Institute of Electrical and Electronics Engi-  
3 | neers (IEEE) 802.1Q standard.

1 | 21. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 18 wherein the par-  
2 | ticular connection is a point-to-point protocol (PPP) connection.

1 | 22. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 18 wherein the par-  
2 | ticular connection is an Asynchronous Transfer Mode (ATM) virtual connection (VC).

1 | 23. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 18 wherein the par-  
2 | ticular connection is a frame relay connection.

1 | 24. (CURRENTLY AMENDED) ~~A~~The method as defined in claim 18 wherein the par-  
2 | ticular connection is a trunked connection.

1 | 25. (CURRENTLY AMENDED) An intermediate node comprising:

2 a line card coupled to a network wherein the line card is configured to acquire  
3 data packets containing destination addresses; and

4 a processor configured to (i) establish one or more virtual ports wherein each vir-  
5 tual port is associated with ~~one or more~~ a plurality of connections and each connection is  
6 associated with a virtual-local-area network (VLAN), (ii) associate an acquired packet  
7 with a VLAN, (iii) identify a virtual port associated with a destination address contained  
8 in the acquired packet, (iv) identify a particular connection associated with the VLAN  
9 and (v) transfer the packet over the particular connection via the virtual port.

1 26. (CURRENTLY AMENDED) ~~An~~ The intermediate node as defined in claim 25  
2 wherein the connections are a combination of connection types.

1 27. (CURRENTLY AMENDED) A apparatus for transferring data packets between a  
2 source node and a destination node contained in a data network, wherein the source node  
3 and destination node belong to the same virtual-local-area network (VLAN), the appara-  
4 tus comprising:

5 means for establishing a virtual port associated with the destination node, the vir-  
6 tual port supporting a plurality of connections, and a particular connection associated  
7 with ~~the virtual port and the~~ VLAN;

8 means for acquiring a data packet from the source node, wherein the packet is as-  
9 sociated with the VLAN and contains a destination address associated with the destina-  
10 tion node; and

11 means for transferring the packet to the destination node over the particular con-  
12 nection via the virtual port.

1 28. (CURRENTLY AMENDED) A computer readable medium comprising computer  
2 executable instructions for execution in a processor, the medium comprising instructions  
3 for:

4           establishing a virtual port that is associated with a destination node, contained in a  
5 | data network, the virtual port supporting a plurality of connections, and a particular con-  
6 | nection associated with a virtual-local-area network (VLAN) ~~and the virtual port~~;  
7           acquiring a data packet wherein the packet is associated with the VLAN and con-  
8 | tains a destination address associated with the destination node; and  
9           transferring the packet to the destination node over the connection via the virtual  
10 | port.